IN THE CLAIMS:

Amend claims 11, 12, 14 and cancel claims 123, 124, 126 without prejudice or admission as shown in the following listing of claims, which replaces all previous versions and listings of claims in the this application.

1. (previously presented) A near-field optical head comprising:

a planar substrate having a first surface, a second surface disposed opposite to the first surface, and an inverted conical or pyramidal hole extending through the first and second surfaces and having at least one fine aperture formed at an apex thereof and disposed in the first surface;

an optical waveguide disposed directly on the second surface of the planar substrate for propagating light along an optical path; and

a mirror disposed in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

2. (previously presented) A near-field optical head according to claim 1; wherein the optical waveguide extends into the inverted conical or pyramidal hole.

3. (previously presented) A near-field optical head according to claims 1 or 2; wherein the inverted conical or pyramidal hole comprises a plurality of slant surfaces each having a different degree of slant from the other.

4. (previously presented) A near-field optical head according to claim 3; wherein one of the slant surfaces has a degree of slant smaller than a mean degree of slant of the plurality of slant surfaces and is disposed in a vicinity of the fine aperture.

5. (previously presented) A near-field optical head according to claim 3; wherein at least one of the slant surfaces has an angle of inclination smaller than 55 degrees with respect to a surface forming the fine aperture.

6. (previously presented) A near-field optical head according to claims 1 or 2; wherein the inverted conical or pyramidal hole of the planar substrate has at least one curved slant surface.

7. (previously presented) A near-field optical head according to claim 6; wherein the curved slant surface decreases in slant degree toward the fine aperture.

8. (previously presented) A near-field optical head according to claim 7; wherein the mirror or the optical waveguide focuses light to the fine aperture or collimates light from the fine aperture.

9. (previously presented) A near-field optical head according to claim 8; wherein the optical waveguide comprises a core and a clad disposed over the core.

10. (canceled).

11. (currently amended) A method of manufacturing a near-field optical head, comprising the steps of:

providing a planar substrate having a first surface and a second surface opposite the first surface;

forming through the first surface of the planar substrate an inverted conical or pyramidal hole having a fine aperture at an apex thereof;

forming an optical waveguide directly on the second surface of the planar substrate for propagating light along an optical path; and

forming a mirror in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

12. (currently amended) A method of manufacturing a near-field optical head, comprising the steps of:

providing a planar substrate having a first surface and a second surface opposite the first surface;

forming through the first surface of the planar substrate an inverted conical or pyramidal hole having a fine aperture at an apex thereof;

bonding an optical waveguide directly on the second surface of the planar substrate for propagating light along an optical path; and

forming a mirror in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

13. (previously presented) A method for manufacturing a near-field optical head, comprising the steps of:

providing a planar substrate having a first surface and a second surface opposite the first surface;

forming through the first surface of the planar substrate an inverted conical or pyramidal hole having a fine aperture at an apex thereof for scattering near field light;

disposing an optical waveguide directly on the second surface of the planar substrate for propagating light along an optical path; and

forming a mirror in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

14. (currently amended) A method for manufacturing a near-field optical head, comprising the steps of:

providing a planar substrate having a first surface and a second surface opposite the first surface;

forming through the first surface of the planar substrate an inverted conical or pyramidal hole having a fine aperture at an apex thereof for scattering near field light;

bonding an optical waveguide directly on the second surface of the planar substrate for propagating light along an optical path; and

forming a mirror in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

15. - 100. (canceled).

101. (previously presented) A method of manufacturing a near-field optical head, comprising the steps of: forming a light propagation member by subjecting a surface of a first substrate to a chemical reaction to form a tapered hole forming a sharpened tip configured to converge toward a recording medium during use of the near-field optical head, the sharpened tip having a fine aperture formed at an apex

thereof; forming in a second substrate a light introducing part for propagating light along an optical path disposed in a direction generally parallel to a surface of the recording medium; and forming a light reflection layer on a surface of the second substrate for reflecting light propagated through the light introducing part toward the fine aperture of the light propagation member.

102. (canceled).

103. (previously presented) A method for manufacturing a near-field optical head for recording information to and reading-out information from a recording medium, comprising the steps of:

forming a tapered hole having a sharpened tip in a first surface of a dielectric material, the sharpened tip being configured to converge toward a recording medium during use of the near field optical head;

disposing a metal film on a periphery of the tapered hole including the sharpened tip;

deforming the metal film in the vicinity of the sharpened tip to form a fine aperture;

working a second surface of the dielectric material opposite the first surface thereof to form a convex surface portion; and

bonding onto the convex surface portion of the dielectric material a light introducing part for propagating light in a direction generally parallel to a surface of the recording medium and a light reflection layer for reflecting light propagated through the light introducing part toward the fine aperture.

104. (previously presented) A method for manufacturing a near-field optical head for recording information to and reading-out information from a recording medium, comprising the steps of:

forming a tapered hole having a sharpened tip in a first surface of a dielectric material, the sharpened tip being configured to converge toward a recording medium during use of the near field optical head;

disposing a metal film on a periphery of the tapered hole including the sharpened tip;

deforming the metal film in the vicinity of the sharpened tip to form a fine aperture;

subjecting a second surface of the dielectric material opposite the first surface thereof to selective ion exchange to form a convex surface portion; and

bonding onto the convex surface portion of the dielectric material a light introducing part for propagating light in a direction generally parallel to a surface of the recording medium and a light reflection layer for reflecting

light propagated through the light introducing part toward the fine aperture.

105. - 119. (canceled).

120. (previously presented) A near-field optical head according to claim 1; wherein the optical waveguide is integrally connected to the second surface of the planar substrate.

121. (previously presented) A near-field optical head according to claim 1; wherein the near-field optical head is an air floating-type optical head.

122. (previously presented) A near-field optical head according to claim 1; wherein the optical waveguide is bonded to the second surface of the planar substrate.

123. - 124. (canceled).

125. (previously presented) A method according to claim 13; wherein the step of disposing the optical waveguide comprises the step of integrally connecting the optical waveguide directly to the second surface of the planar substrate.

126. (canceled).

127. (previously presented) A near-field optical head comprising:

a planar substrate having a first surface, a second surface disposed opposite to the first surface, and an inverted conical or pyramidal hole extending through the first and second surfaces and having at least one fine aperture formed at an apex thereof and disposed in the first surface;

an optical waveguide for propagating light along an optical path, the optical waveguide being formed on the second surface of the planar substrate so that the optical waveguide and the planar substrate form an integral structure; and

a mirror disposed in the optical waveguide for bending in the direction of the fine aperture the optical path of the light propagated through the optical waveguide.

128. (previously presented) A near-field optical head according to claim 127; wherein the near-field optical head is an air floating-type optical head.

129. (previously presented) A near-field optical head according to claim 127; wherein the optical waveguide is bonded to the second surface of the planar substrate.

130. (previously presented) A near-field optical head according to claim 127; wherein the optical waveguide extends into the inverted conical or pyramidal hole.